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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/825,065	04/14/2004	Karl J. Duyck	0174-PA-CIP	7216

7590 06/22/2009  
Michael P. Dilworth  
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Benson Road  
Middlebury, CT 06749

EXAMINER
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GOLOBOY, JAMES C

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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06/22/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/825,065	<b>Applicant(s)</b> DUYCK ET AL.	
	<b>Examiner</b> James Goloboy	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5-9,11-19 and 22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5-9,11-19 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 4/17/09 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. Claims 1, 5-9, 11-19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wheeler in view of Aebli (U.S. Pat. No. 6,315,925).

Wheeler, in the reference's Claim 1 and column 2 line 67 through column 3 line 48, discloses an additive composition comprising an acridan having the structure recited in the currently presented claims 1 and 10, a diphenylamine, and a hindered phenol. In particular, Wheeler discloses that the R groups in the acridan have 1 to 18 carbon atoms, encompassing the 9 carbon atoms (nonyl group) recited in the amended claims. In column 2 lines 57-62, Wheeler discloses that this composition may be used along with a lubricant, such as polyglycols.

Claims 1 and 5-9 recite the limitation that the alkylated diphenylamine in the composition is “residual”. Based on the examples in on pages 26 and 27 of the specification, it is clear that “residual” alkylated diphenylamine is not limited to a small unavoidable impurity remaining after the condensation reaction, but instead can be more than three times the amount of acridan present in the composition. Therefore, it is clear that even if the diphenylamine is added separately after the acridan is isolated, the mixture still meets the limitations of the antioxidant mixture of claims 1, which is in product-by-process form.

From column 4 line 39 through column 5 line 10 Wheeler teaches the synthesis of the acridan involving the condensation of a diphenylamine with a ketone. In column 4 line 55 Wheeler teaches that the diphenylamine may be alkylated, as recited in claim 5, 13, and 15, and in column 4 line 41 further teaches that the ketone can be acetone, as recited in claim 6, 14, and 16.

In component (c) of the reference’s claim 1, Wheeler teaches that the composition also comprises a hindered phenol, which is an antioxidant as recited in claims 7-8 and 17-18. In column 5 lines 16-17 Wheeler discloses 2,6-di-t-butyl-4-methyl phenol, recited in claims 9 and 19, as a suitable hindered phenolic antioxidant.

The difference between Wheeler and the currently presented claims is that Wheeler does not specifically disclose a composition that can be prepared by the partial condensation of a nonylated diphenylamine with an aldehyde or ketone. Wheeler does disclose in column 3 lines 1-11 (structure I) that the R groups of the acridan can be C<sub>1</sub>-C<sub>18</sub> alkyl groups, encompassing the C<sub>9</sub> (nonyl) group recited in the claims, and in

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column 4 lines 54-67 that the diphenylamine and ketone used to form the acridan can have C<sub>1</sub>-C<sub>18</sub> alkyl groups.

Aebli, in column 1 lines 5-16, discloses a mixture of nonylated diphenylamines suitable for stabilizing lubricants, and in column 6 lines 17 specifically teaches polyglycols, as taught in Wheeler. The use of these nonylated diphenylamines as the amine antioxidant of Wheeler forms a composition meeting the limitations of the claimed compositions, as Wheeler renders obvious an acridan containing nonyl groups, as discussed above, and the combination of nonylated diphenylamines and an acridan containing nonyl groups meets the product-by-process limitations recited in the claims. It is also the examiner's position that while claim 11 is a method claim, the only method step recited is adding the antioxidant mixture to the lubricant composition, and the recitation of the partial condensation of the diphenylamine with the ketone is merely a product-by-process limitation for the antioxidant mixture. It would have been obvious to one of ordinary skill in the art to use the nonylated diphenylamines of Aebli as the diphenylamine antioxidant of Wheeler, as Aebli teaches that they are suitable for stabilizing lubricants, including polyglycols.

Additionally, it would have been obvious to one of ordinary skill in the art to form the antioxidant composition by reacting the nonylated diphenylamines of Aebli with a ketone to form the acridan of Wheeler, as in the procedure recited in the claims, and using the composition containing the residual diphenylamine, as the nonylated diphenylamines fall within the group of diphenylamines disclosed by Wheeler as effective antioxidants in combination with the acridan.

***Response to Arguments***

3. Applicant's arguments have been considered but are moot in view of the new grounds of rejection. However, the examiner notes that the acridans of Wheeler can contain nonyl groups, as discussed above.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is (571)272-2476. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JCG

/Glenn A Caldarola/  
Acting SPE of Art Unit 1797